

naturalLiving

Fall/Winter

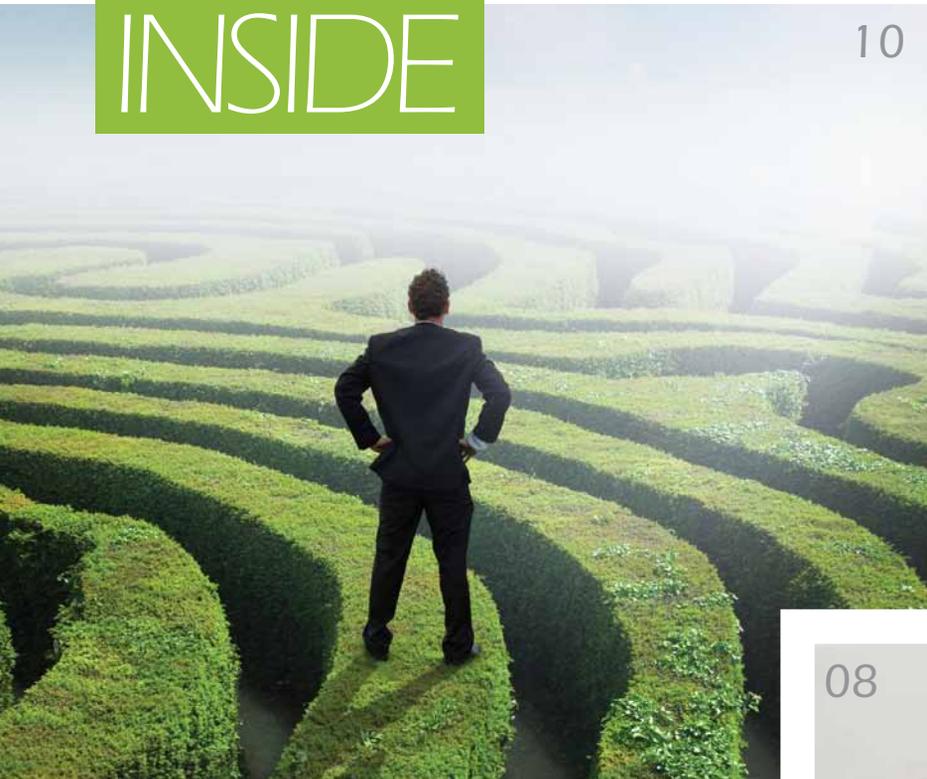
your home. your world.

Navigating the Energy Maze

A guide
to more
efficient
living

Plus

**SAVE MONEY IN THE
LAUNDRY ROOM**



FEATURE

10 Navigating the Energy Maze

Setting out on a journey to improve your home's efficiency — and feeling lost already? This handy guide to the essential concepts and terms will help keep you on track.

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Natural Incentives

Stimulus packages give consumers more reasons than ever to think about energy efficiency.

Both the United States and Canadian governments have initiated stimulus packages in response to the challenging economic times consumers are facing. The money is available through federal and local government in the forms of grants and tax rebates and the purpose of these incentives is to make homes more energy efficient and create new jobs.

U.S. STIMULUS PLAN

The American Recovery and Reinvestment Act (ARRA) is designed to infuse approximately \$860 billion into the economy. Approximately 5 percent of the bill, or close to \$43 billion, is earmarked for energy efficiency-related initiatives.

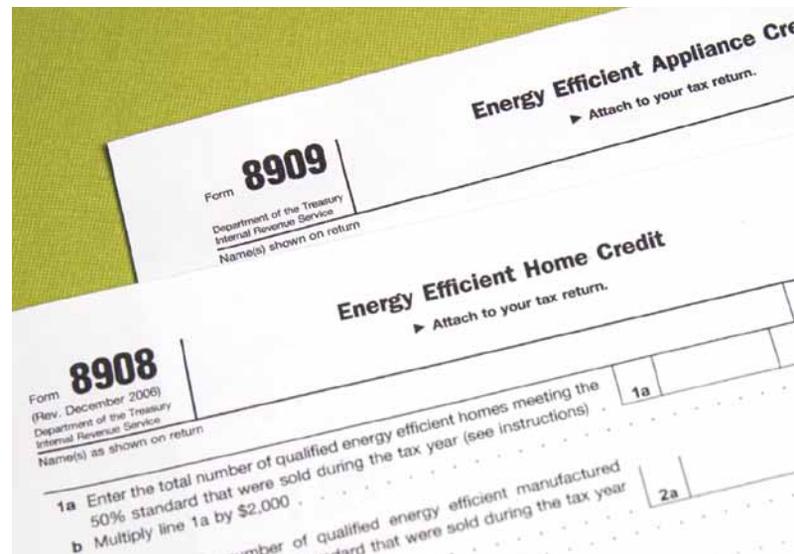
Home Weatherization Assistance Program: This program provides up to \$6,500 per home for weatherization assistance. Income qualifications apply. Information is available through state housing departments or local assistance agencies.

State Energy Efficiency Programs: Approximately \$3.1 billion has been set aside for state energy offices to distribute.

NATURAL GAS: The best energy choice for your home — and the planet.

With U.S. and Canadian energy efficiency financial incentives, it now makes more sense than ever to install a high efficiency, clean burning natural gas furnace and water heater. Why is natural gas key to an environmentally-friendly and energy-efficient home?

- A home with natural gas appliances emits about 45 percent less carbon emissions than an all-electric home and 30 percent less than a home heated with oil.
- Natural gas is the cleanest burning fossil fuel. By using this clean fuel, we can take positive action on climate change by reducing overall green-house emissions.
- Natural gas is domestically produced and abundant. More than 80 percent of natural gas used in North America is produced domestically.



Tax Credits: Tax credits have been increased to 30 percent or a maximum of \$1,500 on qualified home improvements completed by the end of 2010. A natural gas vehicle refueling station qualifies for a \$2,000 tax credit. Before purchasing any major home appliance or making home renovations, go to www.energystar.gov and click on "Tax Credits" in the Energy Efficiency section.

CANADIAN INCENTIVES

ecoENERGY Retrofit Homes: As part of the Government of Canada's Economic Action Plan, this program offers home energy efficiency audits through licensed partners. Homeowners can also qualify for federal grants by improving their home's energy efficiency. Go to www.oeenrncan.gc.ca/english for details.

Energy Star Homes for Canada: A new home that qualifies for the Energy Star logo uses up to 30 percent less energy (as compared to standard energy code). To find an Energy Star builder and learn the benefits of an efficient and healthy home, go to www.esnewhomes.ca.

Ontario Home Energy Savings Program: Ontario residents can get help to pay for a home energy audit that can identify energy leaks and suggest renovations to lower energy bills. Replacing energy-guzzling equipment and other retrofits could qualify homeowners for up to \$10,000 in Ontario and federal rebates. For more information go to www.homeenergyontario.ca. ■

High-Tech Tools For Energy Conservation

A look at new technologies that promote higher efficiencies.

Before rising fuel prices prompted a greater attention to energy conservation measures, manufacturers were testing and creating efficient products to reduce energy use and harmful emissions. So today when homeowners are considering purchasing furnaces and water heaters, they have more choices than ever to save money — and help the environment. Case in point: The following products, which are in various stages of testing and commercial release, can go a long way in cranking up your home's comfort level — while ratcheting down your expenses.

THE MATRIX TOTAL HOME SYSTEM

NTI Thermal spent nearly a decade to create an integrated condensing water heater, furnace, boiler and heat recovery ventilator in one system that's pre-wired for air conditioning and requires less energy to operate than competing products.

Called The Matrix Total Home System, the unit uses a high-efficiency heat exchanger to reduce gas consumption by as much as 30 percent, when compared with a conventional system, while also reducing electricity use. Since the unit serves multiple functions, it may be easier and less expensive to install and service than separate appliances.

The Matrix uses microprocessor electronics to analyze the home environment, producing only the energy needed to increase comfort. In addition to energy savings, the Matrix saves significant amounts of carbon dioxide a year over competing condensing furnaces and heat pumps, according to company claims. (www.ntimatrix.com)

ENERGY RECOVERY VENTILATION SYSTEMS

These systems provide a controlled way to ventilate a home with minimal energy loss. In winter, they transfer heat from the warm inside air being exhausted to the fresh (but cold) supply air, and in summer, the system cools the warmer supply air to reduce ventilation cooling costs, according to literature from the U.S. Department of Energy.

Homeowners can choose a system based on local climate conditions. Heat recovery ventilators (HRVs) are recommended for colder climates that have longer heating seasons, while energy recovery ventilators (ERVs) are the choice for warmer and more humid climates.

The heat exchanger in each of these units uses one or more fans to push or pull air through the unit and control functions. Although wall- or window-mounted units are available, most are whole-house ventilation systems with their own ductwork or shared ductwork. Manufacturers include Fantech (www.fantech.net), Honeywell International Inc. (www.honeywell.com) and Nutech Energy Systems (www.lifebreath.com).

ELECTRIC SPARK IGNITION

For convenience and energy savings, consider an electric spark ignition system for your natural gas fireplace or gas log set. A spark ignition system could save you about \$100 in gas each year by turning off the pilot light when not in use — and it makes relighting your fireplace easier. This system requires gas to be piped to the inlet of the gas control valve, with 110- or 120-volt electricity wired to the transformer. When the appliance is switched to the “on” position,



BACKUP POWER CAN HELP WITH MORE THAN BLACKOUTS

Backup power systems have become more than a luxury item — they are becoming standard in many new-home construction projects and included during remodeling. The most practical and convenient backup power system is the natural gas-powered generator because the natural gas distribution system is rarely affected by inclement weather.

A backup power system provides peace of mind should the electricity fail, allowing the refrigerator and other vital equipment to stay on. Consider what appliances you want to be able to run in a power outage, including air-conditioning, when determining what size generator you need to meet your needs. Discuss this option with a qualified installer.

Whole-house solutions may not cost as much as you imagine. Manufacturers of whole-house generation products include Kohler Co. (www.kohler-power.com), Briggs & Stratton Corp. (www.briggsandstratton.com), Generac Power Systems Inc. (www.generac.com) and Rheem Manufacturing Co. (www.rheem.com).

the igniter sparks and gas flows to the pilot burner and lights the appliance. Should the pilot flame extinguish for any reason, the control module stops the flow of gas but will automatically try to initiate a restart.

For those with existing standing pilots, you can turn it off when the heating season ends and relight it in the fall. (Follow the instructions in your fireplace's operating manual or have a qualified person shut off or relight the pilot.)

MICRO-CHP SYSTEMS

Homeowners can cut their winter energy bills in half through the use of a micro-CHP (combined heat and power) called Freewatt. The system, developed by Climate Energy and Honda, is powered by a Honda engine that runs on natural gas to produce more than 11,000 BTU of heat and 1.2 kilowatts of electricity, which can handle the energy needs of an average size home by producing smaller amounts of heat 24/7. The unit works with hot water and warm air heating systems. Options for the hot water system include a high-capacity, water-heating package.

Marketing of the Honda-powered generator with warm-air-heating systems has begun in the Northeastern states, where sales are boosted by the relatively cool climate and legislation promoting net metering, which allows owners of alternative energy systems to recover costs by feeding extra electricity back into the power grid.

The micro-CHP concept has been embraced by the Partnership for Advancing Technology in Housing, a public/private partnership administered by the U.S. Department of Housing and Urban Development. (www.freewatt.com)

PHOENIX SOLAR WATER HEATER

The Phoenix Solar Water Heater is fueled primarily by the sun, with a gas-fired backup component that is 97 percent efficient to meet the hot water demands of homeowners and businesses. Developed

by Heat Transfer Products Inc., the unit delivers both space heating and hot water in a single, energy-saving and environmentally friendly package.

The Phoenix allows for auxiliary connections to a hydro-air system for space heating, and a pump circulates the heated water to a heat exchanger in the ductwork to provide warm air into the home or office. The unit can also power hydronic radiant floor heating and snow-melting systems.

The Phoenix Solar Water Heater incorporates a dedicated solar heat exchanger at the base of the unit to transfer heat from solar panels to the water in its 80- or 119-gallon storage tank. Made of 316L stainless steel, the corrosion-resistant tank requires no anode rods. During periods when solar power cannot meet demand, the water heater uses the latest in modulating and condensing (Mod-Con) technology to pick up the slack. (www.htproducts.com)

METLUND HOT WATER D'MAND SYSTEM

Waiting for hot water can be wasteful, a problem addressed by the Metlund Hot Water D'MAND System from Advanced Conservation Technology Inc. This system is designed for use with any hot water heating system and consists of a high-performance pump, integrated controller and electronic zone valve that requires no special plumbing and can be installed in an hour or two. The unit prolongs the life of the water heater by allowing it to operate at a minimum heat setting, and the company notes the Metlund system has a one- to three-year payback. Each 10 degree reduction in water heater temperature results in a 3 to 5 percent energy savings.

The Metlund D'MAND System creates a self-cleaning effect on all water heaters. When the pump is activated, cold water is supplied to the water heater at a faster flow rate that creates a turbulence at the bottom of the water heater, which prevents sediments from forming. (www.gothotwater.com) ■





A Tankless Job

High-efficiency residential tankless water heaters add up to big savings.

If you're in the market for a new water heater, you've likely heard of tankless, continuous or demand natural gas water heaters. Although tankless water heaters can cost quite a bit more to purchase, their energy saving features make them a smart choice.

Traditional storage tank water heaters are always "on" — heating and reheating the tank of water, despite the fact that most of us only use hot water for a few hours each day. Tankless units heat the water when the hot water tap is turned on. The water heats up to the desired temperature and stays there until the tap is turned off, which means an endless supply of hot water that many households enjoy.

A tankless water heater designed for residential use can support up to three hot water uses simultaneously and maintain adequate water pressure.

According to the U.S. Department of Energy, homes that use 41 gallons or less of hot water daily can become 24 to 34 percent more energy efficient with the addition of a demand water heater. Homes that use more hot water will gain a smaller efficiency edge over standard tank heaters.

NATURAL BENEFITS

When evaluating the specific needs of your household, consider the benefits of a tankless natural gas water heating system:

- Units are smaller than traditional storage tank water heaters.
- Water is heated when you need it; there is no tank of water to "run out."
- Tankless water heaters typically last for 20 years or more and have easily replaceable parts.
- Tankless water heaters can save your household over \$200 per year compared to a standard storage tank water heater.
- There is no pilot light constantly running and no standby heat loss from stored water, meaning greater energy savings.
- Certain models can be installed indoors or outdoors.

BEFORE YOU BUY

If you're thinking about purchasing a tankless water heater, here are some points you'll want to consider:

The appropriate size for your household needs. To ensure your unit will deliver enough hot water, determine the flow rate and temperature rise you'll need. Make sure the unit you purchase can deliver the most common temperature rise of 70 degrees Fahrenheit (39 degrees Celsius) at the desired flow rate. A trained professional can help you determine the right size for your home.

Minimum flow rate. Tankless water heaters require a minimum flow of water — typically around a half gallon per minute — through the heating system. To avoid problems associated with not meeting the minimum flow requirement, make sure the flow rates at outlets connected to the heater exceed the unit's minimum requirements.

Compatibility with gas and water supplies. Tankless water heaters can utilize three to four times the BTUs of a conventional tank water heater. Ask your plumber to verify that your current gas and water lines are sized properly for the tankless water heater to operate correctly. ■



TANKLESS WATER HEATER MANUFACTURERS

- AO Smith** www.hotwater.com
- Bosch** www.boschhotwater.com
- GasMaster** www.gasmaster-ind.com
- Navien** www.navienamerica.com
- Noritz America** www.noritz.com
- Rinnai** www.rinnai.us
- Rheem** www.rheem.com
- Takagi** www.takagi-usa.com

ADDITIONAL RESOURCES

- Energy Solutions Center** www.energysolutionscenter.org
- U.S. Department of Energy** www.eere.energy.gov
- Energy Efficiency website** www.naturalgasefficiency.com

The Heat Is On!

Discover how the right gas-fired heating equipment can keep temperatures higher and translate into big savings.



Most whole-house heating systems are gas-fired and can be divided into two classes: mid-efficiency and high-efficiency. Mid-efficiency models are about 82 percent efficient; that is, of 100 BTUs (British Thermal Units, a measure of heat), 82 end up being usable heat. High-efficiency or condensing units include those with more than 90 percent efficiency, so for those same 100 BTUs, 90 are used and only 10 are lost. Given those kinds of numbers, the savings difference can be significant.

The Consortium for Energy Efficiency — a nonprofit organization that promotes the manufacturing and purchase of energy-efficient products — estimates that homeowners can save up to 15 percent on energy bills with a qualifying furnace and 10 percent with a high-efficiency boiler, when compared to standard-efficiency units.

Want to turn this winter into a cozy, lower-cost season for your family? Installing a high-efficiency or condensing natural gas furnace can help.

“Condensing units have been around more than 10 years, and each year they take a bigger share of the market,” says Glenn Pottberg, national sales manager at ThermoProducts, a manufacturer of high-efficiency furnaces. “Whether they’re replacing old units or installing new ones, more homeowners want higher-efficiency models.”

The term *furnace* describes a whole-house heating system that heats a space. A *heater* heats a room or specific area by burning natural gas or propane; a flame heats the air, which then heats the room. *Boilers* heat water, not air, then circulate that hot water through plastic tubing, baseboards or radiators (see “Boiler Basics,” below).

DETERMINING EFFICIENCY

The U.S. Department of Energy sets efficiency standards — known as the Annual Fuel Utilization Efficiency, or AFUE — for all boilers and furnaces. The current minimum AFUE is 78 percent. The AFUE rating can be found on the yellow Energy Guide label on each piece of equipment.

The most efficient heating units are called condensing units. In mid-efficiency units, the gas is consumed in a heat exchanger, heating air that is moved through ductwork to your house. In high-efficiency units, gas goes through two heat exchangers, where the secondary exchanger extracts even more heat from the gas it’s burning.

These furnaces are called “condensing” units because they’re so efficient that condensation forms inside the second heat exchanger. An inside drain removes the moisture from the house. ■

BOILER BASICS **Need closet space? New energy-efficient boilers are hot — and much smaller.**

Just as energy-efficiency has translated to heaters, there are more choices for homeowners when it comes to boilers. Perhaps the biggest development is the materials used. Most boilers are made from cast iron; the most energy-efficient ones, however, are constructed from cast aluminum, which means a boost in energy efficiency from 87 percent

with cast iron to 90 percent with aluminum. That might not seem like much, but it will likely make a difference over years of energy bills — and it looks cool too. Known as “modulating/condensing,” or “mod/con” products, these super boilers not only take care of energy-efficient heat transfer, they’re also a lot smaller, which means your boiler

isn’t taking up that closet you wanted to use as hobby storage.

“You can do a lot more in a smaller space with these,” says Ken Niemi of Burnham Hydronics, a manufacturer of several new mod/con boiler products. “Beyond energy efficiency, customers are looking for smaller size and aesthetics.”



Long-term Savings

High-efficiency residential gas dryers slash energy use, cost over time.

When it comes to appliances, your clothes dryer is one of the largest energy users in your home. According to the Consumer Energy Center, most homeowners spend about \$85 a year operating their dryer and can expect to spend approximately \$1,530 during the dryer's 18-year expected lifetime.

However, there are steps you can take to minimize your dryer's energy use and save your household money.

GAS VS. ELECTRIC DRYERS

Natural gas models offer faster drying times and require less money to operate than their electric counterparts. On average, the electric energy needed to dry a typical load of laundry costs 30 to 40 cents, compared to natural gas, which costs only 15 to 20 cents (see www.consumerenergycenter.org).

A high-efficiency natural gas dryer may cost more initially, but it saves money in the long run. Additionally, using natural gas appliances can help reduce greenhouse gases and global warming. Most of our electricity is generated by burning coal, which produces 45 percent more carbon dioxide than natural gas. Because of this, our homes generate even more pollution than the cars we drive.

WHAT TO CONSIDER WHEN BUYING A NEW DRYER

Check the efficiency numbers when comparing models. Keep in mind that you won't find EnergyGuide or Energy Star labels on the units. Since clothes dryers don't vary widely in efficiency, they aren't required to have an EnergyGuide label and don't qualify for Energy



Star labeling. As is the case with many energy efficient appliances, a slightly higher upfront cost for a more efficient model can save you money in the long run.

Purchase a model with a moisture sensor. When the clothes are dry, the machine shuts off rather than continuing to run until the time is up. Most units only estimate dryness through the temperature of the exhaust air, but an extremely efficient dryer will have a moisture sensor in the drum. A temperature-sensing control can save you about 10 percent compared to timed drying, whereas a moisture sensor can save about 15 percent, according to the Consumer Energy Center. You not only conserve money and energy, you also avoid additional wear and tear on your clothes caused by over-drying.

Look for a model that has a cool-down or perma-press period. These cycles use cool air and tumble dry in the last few minutes of the drying process, rather than continuing to use heat. ■



RESIDENTIAL NATURAL GAS DRYER MANUFACTURERS

Rinnai www.rinnai.us
Kenmore www.kenmore.com
Whirlpool www.whirlpool.com
GE www.ge.com
Amana www.amana.com

ADDITIONAL RESIDENTIAL NATURAL GAS DRYER RESOURCES

Energy Solutions Center www.energysolutionscenter.org
National Fuel www.natfuel.com
California Energy Commission www.consumerenergycenter.org
Questar Gas www.thermwise.com
U.S. Department of Energy www.doe.gov



According to the U.S. Department of Energy, houses consume about **37 percent of the energy** and **68 percent of the electricity** the country produces every year — and they're responsible for 1.2 billion metric tons of carbon dioxide emissions.



Being energy efficient definitely pays off when it is time to sell. According to *The Appraisal Journal*, the magazine for professional real estate appraisers, a home gains **20.73 cents in resale value for every \$1** in energy cost-savings measures put into the house.



MORE ENERGY-SAVING TIPS

- Run full loads and you'll spend less money per item of clothing.
- Empty the lint trap between loads. This will make the drying cycle more efficient.
- Put your dryer in a heated space in the home. Storing it in a cold basement or garage will only mean it has to work harder.
- Periodically check your dryer's outside exhaust vent. If it doesn't close tightly, replace it with one that will prevent outside air from leaking in.
- Vent properly. When venting exhaust to the outside, use the straightest and shortest metal duct available. Flexible vinyl ducting isn't recommended because it restricts the airflow, can be crushed and may not withstand high temperatures from the dryer.
- Dry similar fabrics together. Lighter synthetics require less drying time than natural fibers and heavier items such as bath towels.



Navigating *the* ENERGY

Setting out on a journey to improve your home's efficiency — and feeling lost already? This handy guide to the essential concepts and terms will help keep you on track.

Maze



If past forays into energy efficiency have left you feeling a bit disoriented, you're probably not alone. After all, heating and cooling equipment looks as if it were created for a trip to Mars, not your utility room — and everything seems to have a sticker on it touting a different measure of how little energy it uses. Some travelers never get much of a guidebook for their adventures, but consider this article your resource for finding your way.

Here, *Natural Living* lists many of the terms and definitions you'll find while researching and shopping for energy-efficient equipment and home-building products.



Annual Fuel Utilization Efficiency (AFUE).

A measurement used to calculate how efficiently a furnace converts fuel to energy. You don't need to know the math behind it, but you do need to know that any equipment your service contractor proposes now should have an AFUE that's at least in the mid-80s.



Building envelope. This is what the construction industry calls the outside of your house, and it's as important as anything you put inside it.

If your envelope isn't properly sealed, all your investments in warmth and cooling will be for naught. If you've got an older home, you'll want to boost the insulation, check the window caulking and repair the weather stripping around the doors. If you're looking at new construction, go for the maximum insulation your builder offers, and double- or triple-pane windows.



Double glazing. If your windows are not double glazed, you want to put this on your to-do list.

Double glazing, sometimes referred to as double- or dual-paned, refers to two panes of glass with airspace between them that's usually filled with an inert gas that can help reduce the amount of solar heat gain. It may sound like

a waste of materials at first, but double glazing keeps the warm air in, the cold air out and more money in your wallet.



Carbon dioxide. It's what's created when you exhale, but in its new bad-guy role, it's one of the components of the greenhouse gases that

are making the earth warmer. A builder or remodeler may tout his home's "carbon footprint," which is an attempt to measure overall impact on the environment. The bottom line is this: Even if your house is big, your carbon footprint can be small.



Energy Star. Energy Star is a governmental program that identifies products that use less energy and water, and therefore create fewer green-

house gas emissions. Any energy-consuming appliance you buy for your home should have an Energy Star rating. Plus, some new homes have their own Energy Star rating for the whole home. But don't stop there. Groups like the Consortium for Energy Efficiency (CEE) are pushing companies that make appliances, lighting, electronics, heating and cooling equipment to reach for more than the stars. CEE is also pushing for standards on installation. Go to the Energy Star Web site at www.energystar.gov for more information.





Condensing. The most energy-efficient heating equipment is often known as “condensing” and has an efficiency rating of at least 90 percent. This includes condensing boilers, furnaces and water heaters. Condensing heaters capture additional heat from combustion vapors that are otherwise lost through the vent in a conventional system.



Geothermal. Geothermal systems use a pump to move the heat of the earth into your home, or from your home back into the ground. It’s sometimes used in combination with conventional energy sources. The up-front costs of geothermal systems are more expensive than even highly efficient conventional systems.



Hydronic heating. In old homes, hydronic heating meant radiating warmth around the periphery of the room through — what else? — radiators. Today, hydronic heating is likely to be accomplished by pumping hot water through coils under the entire floor. That heat warms your toes and, as it rises, your whole body. Where are the savings? Under-floor systems can operate at a lower temperature than a conventional system and still produce the same heating effect because they have a larger surface.



Infiltration. This term may sound like something out of a James Bond movie, but it’s not. Infiltration happens when outside air leaks into your home through gaps in the building’s construction, or envelope.

A healthy home does allow air to be exchanged with the outside, but too much air out or in means extra spending on energy for you.



LEED. Short for Leadership in Energy and Environmental Design, this system was created to rate primarily commercial buildings, but it also rates residential construction — both new and remodeled. Buildings that are LEED-rated have been inspected during construction by an independent auditor, who evaluates not only energy and water usage, but also things like the site chosen and building materials used. Your home can be LEED-rated at one of four levels: Certified, Silver, Gold and Platinum. For more information, check out the U.S. Green Building Council’s site (www.usgbc.org) and the Canada Green Building Council’s site (www.cagbc.org).



Load or demand. These terms refers to how much power or energy you and all the gadgets and machinery in your home consume. Your goal should be to lighten your load by increasing the energy efficiency of new equipment and maintaining old systems in top working order.



Meter. This device measures how much gas or electricity is being consumed by your home. To measure how efficiently that energy is being used, get an energy audit from your local utility or an independent contractor, such as those who participate in the Residential Energy Services Network (www.natresnet.org).



Energy Star is a program that identifies products that use less energy and water, and therefore create fewer greenhouse gas emissions.



Original equipment manufacturer (OEM).

As used in the auto industry, OEM is a term that means the equipment originally designed to be part of your car. But new-home buyers are beginning to see a similar concept as builders offer HVAC systems that will heat and cool their homes as they designed them to be. A smaller, more efficient HVAC system may be the best investment for an older home, since the builder may have originally installed the largest — but not necessarily the most efficient — system in the home. In the past, contractors frequently put in the most powerful system they could fit through the door, even if it was too much for the house. Remodelers also need to think about how their mechanicals will function as a whole, and buy accordingly.



Renewable energy.

Builders are increasingly incorporating renewable energy (that which is generated from natural resources like sunlight and wind) into their projects, either as complements to fossil-fuel-based systems. The up-front costs of many renewable energy systems are more expensive than even highly efficient conventional systems.



R-Value.

This is scientific speak for how efficient your insulation is at keeping heat in (or out) of your home. Whether you're in Wisconsin or Winnipeg, it pays to have the highest R-value that your builder offers. If you're buying an older home, ask what code is for new homes in your area, and make up the difference between what your home has and the current standard. You'll reap the savings in your monthly energy bill.



Seasonal Energy Efficiency Ratio (SEER).

When buying a central air-conditioning unit, focus on SEER, not BTUs. The latter is just an indication of the amount of cooling the unit can produce, and more may not be what your home (or energy budget) needs. Instead, think about what you can save in power costs. Consumers focusing on SEER in the past decade saved some \$50 billion on their energy bills. Buy equipment with the highest SEER that your budget will allow.



U-Value.

This is the rating system used on windows to show how much heat they let in or out of your home. And while you want your R-Value to be high, your U-Value should be low — unless you like the feeling of winter in your living room. ■



THINKING GREEN — *Without Feeling Black and Blue*

Of all the confusing terms that homeowners and home buyers will hear when considering energy efficiency, none is more buffeting than this one simple word: green.

One builder may assert that his project is “green” if he cuts down only a handful of trees in readying the lot for construction. But another wouldn’t dream of using it unless every aspect of the project, from the site chosen to

the building materials used, was in concordance with nature.

If someone touts a home or energy equipment as “green,” ask for specifics, like the R-value of its insulation, the AFUE rating of the mechanicals, or independent certification from the Residential Energy Services Network (www.natresnet.org) or LEED (www.usgbc.org/leed). That should keep the bruising to a minimum.



ELECTRICITY

100»
MMBTU
source
energy



Extraction, processing and transportation losses

88»



Conversion losses

29»



Distribution losses

27»



Delivered to customer

NATURAL GAS

100»
MMBTU
source
energy



Extraction, processing and transportation losses

92»



Distribution losses

90»



Delivered to customer

Thanks to lower conversion losses, three times more energy reaches the customer with natural gas than with electricity.

Reduce Your Waste!

The truth about efficiency — and what the labels don't tell you.

To most of us, electricity is what happens when we hit the light switch. But we don't get electricity just by pumping it out of the ground — it has to be produced by using something else as a fuel source. That could be coal, oil, nuclear power or natural gas. And while that process can generate a lot of power, it also generates a lot of waste — and it wastes a lot of energy.

How much is wasted? According to the Energy Information Administration (EIA), of all the energy put into the production of electricity in America, only 30 percent makes it to the end user. The rest is what the industry calls "conversion losses" — a simple reckoning that you can't just put 100 pounds of coal into the hopper at your local utility and get 100 pounds of electricity out. That remaining 70 percent is essentially lost, due in part to the transmission method, making it a major factor in the greenhouse gas emissions that are affecting the earth's climate.

With natural gas, there are also some energy losses, but nothing on the scale of what happens when producing electricity. According to the EIA and other energy sources, the overall efficiency of natural gas from when it is pumped out of the ground and piped to your

home to fuel your appliances is a stunning 90 percent.

Further, natural gas is the cleanest-burning fossil fuel. Coal and oil release a higher level of carbon emissions, nitrogen oxides and sulfur dioxide. On average, a homeowner using natural gas instead of electricity for heating, water heating, cooking and clothes drying has a carbon footprint of about 8,500 pounds of CO₂ per year vs. 16,000 pounds per year or higher for all electric appliances. So does that mean that if you're a natural gas customer, you can be satisfied that you've done your bit for the environment? Hardly. You still need to be conscious of the age of an appliance, as newer ones are more efficient — and the operational savings can help offset the investment. The easiest way to compare two appliances is to check out the EnergyGuide/EnerGuide label, which gives information on estimated energy consumption and estimated yearly operating costs. ■

The National Research Council study fuel cycle efficiency measurement can be found at www.energyefficiencynews.com/i/2122

Ginger-Infused Carrot Soup

Preparation time: 10 minutes, Cooking time: 20 minutes, Yield: 1 quart

INGREDIENTS

SOUP

- 1 Tbsp butter
- 1 medium onion, peeled and sliced thin
- 1-inch knob of ginger, peeled, washed and sliced thin against the grain
- 1 1/2 pounds carrots, peeled and cut into 1/2-inch slices
- 3 cups chicken stock (enough to cover 1 inch over carrots)
- 1 sprig fresh rosemary
- 2 Tbsp sugar
- 8 ounces heavy cream
- Salt and white pepper to taste

CROUTONS

- 3-4 slices bread, cut into 1-inch cubes
- 1/4 cup unsalted butter
- 2 Tbsp rosemary, chopped
- Salt and pepper to taste

PREPARATION

SOUP

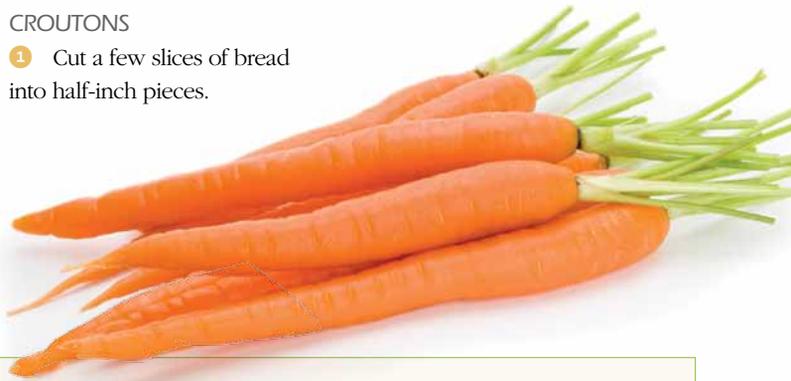
- 1 Over low heat, melt butter in 6-quart saucepan. Add onions and ginger, stir then cover. Cook slowly until onions are translucent. Add carrots, chicken stock, rosemary and sugar. Simmer until carrots are tender.

- 2 Remove stem of rosemary, place soup in blender and purée until very smooth. Return soup to saucepan and whisk in cream. Taste and adjust seasonings with salt and pepper.

- Sauté in butter and chopped rosemary until golden. Add salt and pepper to taste.
- 2 Garnish soup with croutons before serving.

CROUTONS

- 1 Cut a few slices of bread into half-inch pieces.



Chicken Scaloppine In Lemon-Caper Sauce

Preparation time: 20 minutes, Cooking time: 20 minutes, Yield: 8 servings

INGREDIENTS

- 8 boneless, skinless chicken breasts
- Salt and white pepper, to taste
- 1 cup all-purpose flour
- 1 pound linguine pasta
- 4 lemons
- 1 (4-ounce) package sun-dried tomatoes, soaked in hot water
- 1/4 cup, plus 1/4 cup olive oil
- 1/4 cup, plus 1/4 cup butter
- 4 cloves garlic, minced
- 1 (4-ounce) jar green olives
- 1 (2-ounce) jar capers, drained
- 1 cup white wine
- 2 cups chicken stock
- 1 (14-ounce) can artichoke hearts, drained and chopped
- 2 Tbsp Italian parsley, chopped
- 1 cup Parmesan cheese

PREPARATION

- 1 Place chicken breasts between a cutting board and a sheet of plastic wrap. Using a meat mallet, pound chicken breasts flat into a 1/4" thick scaloppine being careful to not tear the ends of the chicken breasts. Season with salt and white pepper, then dredge with flour.

In a large sauté pan, heat 1/4 cup butter and 1/4 cup oil. Fry chicken breasts on both sides over medium heat to brown and fully cook, about 10 minutes. Remove and repeat with remaining chicken breasts. Drain oil and butter, and wipe pan out with paper towels. In a large stockpot, bring 6 quarts water to a boil. Boil pasta for 12 minutes over medium heat once it returns to a boil. Drain and rub with olive oil to prevent the pasta from drying out. Place in 9 x 13" casserole dish.

- 2 Slice two of the lemons into thin slices; squeeze the juice from the other two. Drain sundried tomatoes, slice into strips and remove seeds in both. Meanwhile, melt remaining butter and oil in sauté pan. Add garlic and cook until fragrant, about 1 minute. Add lemon slices and lemon juice. Cook until garlic is golden brown. Remove the lemon slices and set aside. Add olives, capers and sundried tomato strips. Allow the capers to brown slightly. Reduce heat and pour in wine. Increase heat to medium and allow wine to reduce by half. Add chicken stock and allow it to reduce slightly. Add artichoke hearts to heat through and Italian parsley.
- 3 Coat each chicken scaloppine in sauce, then layer over pasta in the casserole dish. Pour sauce over chicken scaloppines. Serve immediately. Garnish with lemon slices and sprinkle with Parmesan cheese.





Dress the part.

Put on a sweater and turn the thermostat down a notch in winter, and wear lighter apparel and turn up the thermostat in the summer.



Tune up.

Have a licensed professional inspect your heating and cooling systems seasonally.



Button down.

Break out the caulk and weather stripping to make your windows and doors close snugly. Wrap your water heater and water pipes in insulation.



See the stars.

When you purchase new mechanical systems, appliances or even a home, buy the highest Energy Star efficiency rating you can.



Get stuffed.

Extra insulation will make your house warmer in winter and cooler in summer.



Get light.

As your incandescent bulbs burn out, replace them with compact fluorescent lights.



Plant green.

Add deciduous trees on the southwest side of your house. They'll block the strong summer sun, but after they drop their leaves, winter's rays will warm your house.



Stay clean.

Keep your heating and air conditioning filters free of dust, which can rob your systems of their peak efficiency.



Get with the program.

Buy a programmable thermostat that regulates temperatures based on when you're home and awake.



Save the planet.

Every step you take for energy efficiency is a leap for the overall health of the earth.